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## Algebra 1: Statistics Review

1. The number of eagles observed along a certain river per day over a two week period is listed below. What is a frequency table that represents the data?
$\begin{array}{lllllllllllll}1 & 3 & 2 & 5 & 10 & 8 & 9 & 15 & 0 & 7 & 12 & 13 & 6\end{array} 18$

a. | Eagles | Frequency |
| :---: | :---: |
| $0-4$ | 2 |
| $5-9$ | 3 |
| $10-14$ | 4 |
| $15-19$ | 5 |

c. | Eagles | Frequency |
| :---: | :---: |
| $0-4$ | 4 |
| $5-9$ | 5 |
| $10-14$ | 3 |
| $15-19$ | 2 |

| Eagles | Frequency |
| :---: | :---: |
| $0-4$ | 4 |
| $5-9$ | 5 |
| $10-14$ | 2 |
| $15-19$ | 3 |

d.

| Eagles | Frequency |
| :---: | :---: |
| $0-4$ | 5 |
| $5-9$ | 4 |
| $10-14$ | 2 |
| $15-19$ | 3 |

$\qquad$
2. The number of hours a group of contestants spent preparing for a quiz show are listed below. What is a frequency table that represents the data?
$\begin{array}{lllllllllllllll}60 & 25 & 86 & 56 & 45 & 48 & 90 & 75 & 30 & 67 & 90 & 36 & 80 & 15 & 32 \\ 65 & 61\end{array}$
a.

| Hours | Frequency |
| :---: | :---: |
| $0-9$ | 4 |
| $10-19$ | 1 |
| $20-29$ | 1 |
| $30-39$ | 2 |
| $40-49$ | 3 |
| $50-59$ | 4 |
| $60-69$ | 1 |
| $70-79$ | 1 |
| $80-89$ | 1 |
| $90-99$ | 1 |

c. | Hours | Frequency |
| :---: | :---: |
| $0-9$ | 0 |
| $10-19$ | 1 |
| $20-29$ | 2 |
| $30-39$ | 1 |
| $40-49$ | 2 |
| $50-59$ | 1 |
| $60-69$ | 4 |
| $70-79$ | 1 |
| $80-89$ | 1 |
| $90-99$ | 1 |

| Hours | Frequency |
| :---: | :---: |
| $0-9$ | 1 |
| $10-19$ | 2 |
| $20-29$ | 1 |
| $30-39$ | 2 |
| $40-49$ | 2 |
| $50-59$ | 3 |
| $60-69$ | 3 |
| $70-79$ | 1 |
| $80-89$ | 0 |
| $90-99$ | 2 |

d.

| Hours | Frequency |
| :---: | :---: |
| $0-9$ | 0 |
| $10-19$ | 1 |
| $20-29$ | 1 |
| $30-39$ | 3 |
| $40-49$ | 2 |
| $50-59$ | 1 |
| $60-69$ | 4 |
| $70-79$ | 1 |
| $80-89$ | 2 |
| $90-99$ | 2 |

3. The data below shows the average number of text messages a group of students send per day. What is a histogram that represents the data?


Find the mean, median, and mode of the data set. Round to the nearest tenth.
4. $15,13,9,9,7,1,11,10,13,1,13$
5. test scores on a math exam:
$88,89,65,62,83,63,84,63,74,64,71,82,66,88,79,60,86,63,93,99,60,85$
6. The table shows the number of hours that a group of students spent studying for the SAT during their first week of preparation. The students each add 4 hours to their study times in the second week. What are the mean, median, mode, and range of times for the second week?

| Student | Hours |
| :--- | :---: |
| Bob | 19 |
| James | 10 |
| Karen | 15 |
| Rosario | 17 |
| Antoine | 10 |
| Julio | 16 |
| Maria | 13 |

a. $\quad$ mean $=14$
c. $\quad$ mean $=19$
median $=19$
mode $=18.3$
range $=9$
median $=18.3$
mode $=14$
b. $\begin{aligned} & \text { mean }=18.3 \\ & \text { median }=19 \\ & \text { mode }=14 \\ & \text { range }=9\end{aligned}$
b. $\begin{aligned} & \text { mean }=18.3 \\ & \text { median }=19 \\ & \text { mode }=14 \\ & \text { range }=9\end{aligned}$
b. $\begin{aligned} & \text { mean }=18.3 \\ & \text { median }=19 \\ & \text { mode }=14 \\ & \text { range }=9\end{aligned}$
b. $\begin{aligned} & \text { mean }=18.3 \\ & \text { median }=19 \\ & \text { mode }=14 \\ & \text { range }=9\end{aligned}$
range $=0.7$
d. $\quad$ mean $=18.3$
median $=19$
mode $=14$
range $=0.7$
7. The table shows the number of hours that a group of friends spent in their first week training to run a marathon. In the second week, they each add 5 hours to their training times. What are the mean, median, mode, and range of times for the second week?

| Runner | Hours |
| :--- | :---: |
| Jeff | 9 |
| Mark | 5 |
| Karen | 5 |
| Costas | 5 |
| Brett | 7 |
| Nikki | 6 |
| Jack | 7 |

a. $\quad$ mean $=10$
c. mean $=11.3$
median $=11$
mode $=11.3$
range $=4$
median $=11$
mode $=10$
range $=4$
b. $\quad$ mean $=11$
median $=11.3$
mode $=10$
range $=0.3$
d. $\quad$ mean $=11.3$
median $=11$
mode $=10$
range $=0.3$

## What are the minimum, first quartile, median, third quartile, and maximum of the data set?

8. $18,20,11,10,8,6,12,4$
a. minimum 4; first quartile 7; median 10.5; third quartile 17.5; maximum 20
b. minimum 4 ; first quartile 5.5 ; median 12.75 ; third quartile 15 ; maximum 20
c. minimum 4; first quartile 8.75 ; median 12.75 ; third quartile 17.5 ; maximum 20
d. minimum 4 ; first quartile 7 ; median 10.5 ; third quartile 15 ; maximum 20
9. $60,50,130,200,180,150,100,140$
a. minimum 50; first quartile 80 ; median 135; third quartile 165 ; maximum 200
b. minimum 50; first quartile 107.5; median 150; third quartile 182.5; maximum 200
c. minimum 50 ; first quartile 80 ; median 135 ; third quartile 182.5 ; maximum 200
d. minimum 50 ; first quartile 65 ; median 150 ; third quartile 165 ; maximum 200

## Make a box-and-whisker plot of the data.

10. $24,18,29,21,16,23,13,11$
11. average daily temperatures in Tucson, Arizona, in December:
$67,57,52,51,64,58,67,58,55,59,66,50,57,62,58,50,58,50,60,63$
12. The two box-and-whisker plots below show the times in seconds for two teams in a 100 m dash. What do the interquartile ranges tell you about the two teams?

a. Team A has more consistent times
b. Team B has more consistent times
c. Overall team A is faster than team B
d. Overall team B is faster than team A
13. The two box-and-whisker plots below show the scores on a math exam for two classes. What do the interquartile ranges tell you about the two classes?

a. Class A has more consistent scores
b. Class B has more consistent scores
c. Overall class A performed better than class B
d. Overall class B performed better than class A

## Is each data set qualitative or quantitative?

14. favorite sports teams
a. qualitative
b. quantitative
15. the numbers of hours spent commuting to work by the employees of a company
a. qualitative
b. quantitative

Is each data set univariate or bivariate?
16. the number of hours surfing the web by students at your school
a. univariate
b. bivariate
17. the height and weight of a group of patients in a medical study
a. univariate
b. bivariate

## Identify the sampling method.

18. You want to determine the number of text messages students at your school make in a month. You randomly ask everyone in each of your classes.
a. random
c. stratified
b. systematic
d. none of these
19. You want to find how many students use public transportation. You interview every fifth teenager you see exiting a movie theater.
a. random
c. stratified
b. systematic
d. none of these
20. A restaurant chain's owners are trying to decide if they want to open up a franchise in your town. To help them decide, they conduct a telephone survey of people in your town. One of the survey questions is "Do you prefer Thai food or Chinese food?" Is the question biased? Explain.
21. A restaurant chain's owners are trying to decide if they want to open up a franchise in your town. To help them decide, they want to find out how often people in your town go out to eat. A researcher interviews people leaving a local restaurant. Is there a bias in this sampling method? Explain.
22. A bookstore wants to determine how many books the people in the surrounding neighborhood read per month on average. They survey each customer who enters their store for one week. Identify any bias in this method. If appropriate, suggest a method more likely to produce a random sample.
23. Students from two high schools went to a band competition. Each student gave a solo performance and was rated by the judges. The possible scores ranged from 3 (one point from each judge) to 21 (seven points from each judge). The data show the scores of two groups of students.
Westlake Student Scores: $\quad 8,10,15,21,3,15,10,21,15,20$
Northshore Student Scores: 5, 6, 19, 10, 12, 10, 12, 9, 20, 8
Find the mean and the range of the data for the Westlake High School students and for the Northshore High School students. Use your results to compare the scores of the students from the two high schools.
24. Teams from two colleges competed in a 10 km cross-country race. The data below show the finish times in minutes for the two teams.
Team A: 25, 30, 25, 30, 30, 35, 34, 26, 35, 32
Team B: 32, 28, 28, 26, 31, 30, 32, 29, 32, 30
Find the mean and the range of the data for Team A and for Team B. Use your results to compare the two teams.
